

Oxifree TM198 Chemical Resistance



Substance Reference:

Document reference – OXI CR 001 rev2 Mar 2011:

Test Liquid	Immersion +24hrs	Splashing	Gas/Vapours
Tap Water	Resistant	Resistant	Resistant
Salt Water	Resistant	Resistant	Resistant
Distilled Water	Resistant	Resistant	Resistant
Petroleum	Resistant	Resistant	Resistant
Diesel	Resistant	Resistant	Resistant
Ethanol	Not Resistant	Resistant	Resistant
Paraffin/Kerosene	Resistant	Resistant	Resistant
Methanol	Not Resistant	Resistant	Resistant
Hydrochloric/Muriatic Acid 20%	Not Resistant	Resistant	Resistant
Hydrofluoric Acid 20%	Not Resistant	Resistant	Resistant
Sulphuric Acid 20%	Resistant	Resistant	Resistant
Acetic Acid 20%	Resistant	Resistant	Resistant
Phosphoric Acid 20%	Resistant	Resistant	Resistant
Citric Acid 20%	Resistant	Resistant	Resistant
N-Methylpyrrolidone	Not Resistant	Resistant	Resistant

Hydrogen Sulphide	Not Resistant	Resistant	Resistant
Sodium Hydroxide 20%	Resistant	Resistant	Resistant
Ammonium Hydroxide 20%	Resistant	Resistant	Resistant
n-Butyl Acetate	Not resistant	Resistant	Resistant
GM Gas (Contains 2,2,4-Trimethylpentane, toluene, di-isobutylene, ethanol, water and formic acid)	Not resistant	Resistant	Resistant
Tecsol C, anhydrous (Denatured ethyl alcohol contains -ethanol, methanol, methyl isobutyl ketone, ethyl acetate)	Not resistant	Resistant	Resistant

Process:

Method Statement in accordance with Oxifree Global Guidelines

1. Use 6 Inch x 3 Inch steel pate encapsulated with Oxifree TM198 for immersion, splash and vapour testing
2. Glass bell housing used to enclose sample for exposure to Gas/Vapours or where emissions are expected)
3. Acids and Bases evaluated at 1,2,24,36,72,168 hours
4. Solvents evaluated at 2 Minutes, then 2,3,8, and 24 hours
5. Continue testing for 60 days in ambient temperature no lower than 12 Celsius, no greater than 30 Celsius
6. Assess samples following 60 days.

Conclusion:

Oxifree TM198 has shown varying degrees of resilience to immersion and continuous splashing of the chosen chemicals:

Bases have little to no reaction with material surface integrity and colour retained after 10 days of exposure.

Certain acids caused some, softening swelling and colour discoloration of the TM198, however the metal substrate appears unaffected beneath the coating. TM198 would retain original consistency when acids removed from surface of material. The softening after 24 hours exposure ranged from none with Phopheric Acid to slight with Nitric Acid.

Solvents certainly caused the greatest degradation of TM198 and prolonged exposure caused melting and extreme softening of the material eventually revealing the metal substrate when exposed to constant surface contact with

liquid solvents. Kerosene had little to no effect on the TM198, however n-Butyl Acetate, Methanol and Methyl Isobutyl Ketone all dissolving the material after 2 Minutes of immersion. Xylene caused TM198 to swell after 2 minutes but return to normal form when Xylene removed.

GM Gas caused the TM198 material to swell and crack after 2 hours of exposure. NMP started to dissolve the material after 2 hours of continuous liquid to material surface contact. Denatured ethanol caused the TM198 to swell and started to dissolve slightly after 2 hrs of direct liquid to coating surface contact.

Mineral spirits had no effect on the integrity of the TM198 coating after 24 hours of constant liquid to coating surface exposure.

Overall Oxifree TM198 has shown very good resistance to chemicals tested especially where Chemicals are present in the atmosphere or through irregular splashing and provides effective protection of the coated metallic substrate.

For more information please contact



Oxifree Global LLC

Tel: +1 281 251 7171

Email: info@oxifree.com